AMENDMENTS TO THE CLAIMS

1. (Currently amended) A CO_2 incubator for incubating a culture medium comprising:

a housing having an interior divided into at least two separate incubation spaces by a partition and a respective door for opening and closing entry into each of said incubation spaces;

CO_2 gas concentration detection means for detecting a CO_2 concentration in each of the plurality of incubation spaces,

air-agitating blower for agitating the air in the plurality of incubation spaces to make uniform the state of the air in each said space,

a measurement air sampling tube and a first multi-position valve for selectively communicating the air sampling tube with the inside of each of the incubation spaces,

a measurement air return tube and a second multi-position valve for selectively communicating the air return tube with the inside of the incubation spaces,

a pump for sucking a part of the air in the plurality of incubation spaces into the measurement air sampling tube, and returning the air to the incubation spaces through the measurement air return tube after being taken by the CO_2 gas concentration detection means,

CO_2 gas concentration setting means for setting a desired CO_2 gas concentration to be present in the incubation space,

CO_2 gas supply means and a valve apparatus for selectively supplying a CO_2 gas into each of the incubation spaces, and

a control means for controlling the CO_2 gas supply means ~~that operates each of said first, second and third multi-position valves to select the gas in any incubation space, detect the CO_2 gas concentration of the selected gas by the CO_2 gas concentration detection means, and control the supply of the CO_2 space to each incubation space in accordance with the detected CO_2 gas concentration by executing an~~ operations of proportion, proportion and integration, or proportion

and integration and differentiation on the basis of a deviation between the detected CO_2 gas concentration and the set CO_2 gas concentration value to calculate a CO_2 gas supply time per unit time to the incubation space and a stop time, wherein said proportion operation calculates a control amount in proportion to the deviation for reducing the deviation, said integral operation calculates a control amount for reducing an integrated value of the deviation, and said differential operation calculates a control amount for reducing a differentiated value of the deviation; and

the control means controls supply of ~~CO_2 gas concentration in the incubation space as detected by said CO_2 gas concentration detection means and a set CO_2 gas concentration value set by said CO_2 gas concentration setting means to calculate a CO_2 gas supply time per unit time to the incubation space and a stop time, and to supply~~ CO_2 gas to the incubation space from the CO_2 gas supply means in accordance with the calculated supply time and stop time.

2. (Original) The CO_2 incubator according to claim 1, wherein the CO_2 gas concentration detection means is constituted of a CO_2 sensor using infrared rays.

3. – 5. (Canceled)

6. (New) The CO_2 incubator according to claim 1, wherein a plurality of incubation spaces are disposed in the incubator and

the control means selects the gas in any incubation space, detects the CO_2 gas concentration of the selected gas by the CO_2 gas concentration detection means, and controls the supply of the CO_2 gas to each incubation space in accordance with the detected CO_2 gas concentration.